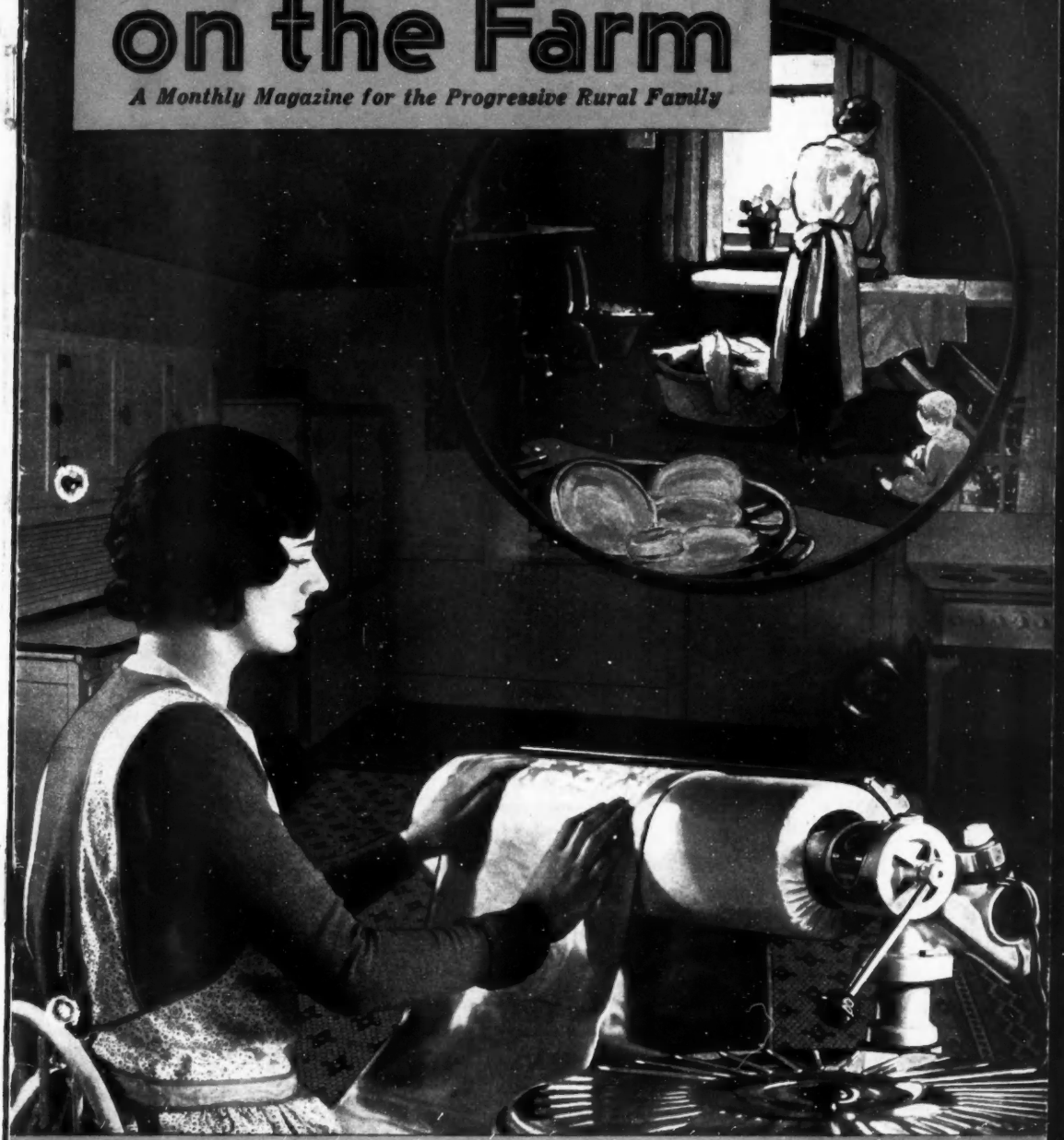
Electricity on the Farm

A Monthly Magazine for the Progressive Rural Family



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FEBRUARY 1933

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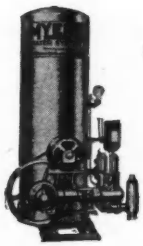

Fig. 2510—Shallow Well Water System

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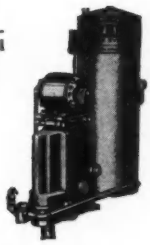

Fig. 2708—Deep Well Water System

FOR wells 25 feet or over in depth. Designed for country and suburban homes, farms creameries, etc. It is a complete unit, except the lower cylinder, ready to be installed. Self-starting, self-stopping, self-oiling. Will operate continuously 24 hours a day without attention. Built for long life and economical service.

Fig. 2631—Shallow Well Water System

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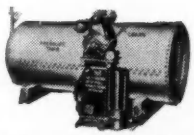

Fig. 2551 — Gas-Engine-Operated Deep Well System

THE ideal system where electric current is not available. Self-oiling, semi-automatic. Starting pedal makes it easy for boy or woman to start the engine. Can be changed over to an entirely automatic electric water system. Also furnished for shallow wells and cisterns.

Fig. 2741—Deep Well Direct Water System

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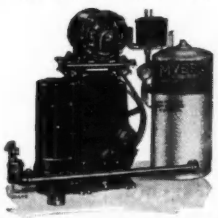

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February, 1933

Electricity on the Farm

Vol. 6. No. 2

EDITORIAL

THE difficulties of agriculture are foremost in the public eye at this moment. They represent the biggest problem now before both houses of Congress. The daily press, as well as a large number of weekly and monthly magazines, are devoting liberal space to the discussion of the subject.

For the first time those living in cities are brought to realize the fact that it costs money to run a farm, and that even if a farm family raises all the food it needs, has its own wood lot for fuel, and a comfortable home to live in, it is not depression proof.

The relatively high taxes paid on farm properties have proven a surprise to those city dwellers who never before considered this angle of farm operation.

That some good will come out of all this publicity is a foregone conclusion. Just how effective legislation may prove in relieving the distressed on farms is still to be learned. Benefits there must be, for if the methods first applied do not prove fruitful, then others will be tried.

Even though relief is not immediately accomplished, one thing is certain: the consumer of products furnished by farmers will have a little more consideration, a little more friendship for, and a far better understanding of the trials and difficulties of those who depend upon the soil for their living.

THE PUBLISHERS.

IN THIS ISSUE

Ancient Incubation

BY HELEN COWAN

Incubation of poultry was practiced by the ancient Egyptians, who used large brick ovens for hatching of eggs. The author outlines the history of incubation from early historical times up to the present in this article, on page 7.

Practical Poultrymen

BY H. P. VICKREY

Modern poultrymen in Oregon depend on electric brooders with highly satisfactory results. Brooding houses, types of electric brooders and the results secured therefrom are described by Mr. Vickrey in his article on page 8.

Feed Grinder for Small Farms

BY GEORGE W. KABLE

Contrary to general belief, there are satisfactory feed grinders which operate on motors of as little as one quarter horsepower. The results, according to Mr. Kable, are very satisfactory. The author, on page 9, describes one small set-up which cost less than forty dollars complete.

Propagating Ornamental Evergreens

BY J. C. SCOTT

Electric hotbeds have been in use for several years for starting vegetables and flowers but their use in speeding up growth of ornamental evergreen shrubs is comparatively new. Mr. Scott outlines in the article on page 10, equipment and methods employed at a nursery at Renton, Washington, where electric current serves very satisfactorily for starting shrubs.

Modern Methods Pay

BY C. L. OSTERBERGER

In this article (page 11) is described how one Louisiana dairy and poultry farm made money, largely through the extended use of electricity.

Heating with a Fan

BY PROF. L. J. SMITH

Numerous uses are being found for the electric household fan. In his article on page 16, Prof. Smith outlines a few of the uses which make it an all-year appliance, instead of one for warm weather use only.

Regular Monthly Features

Electrical Housekeeping, page 13; Questions and Answers, page 17; What's New, page 19; On the Air, page 20.

Issued Monthly by

CASE-SHEPPERD-MANN PUBLISHING CORP.

Editorial-Executive Offices: 24 West 40th Street, New York

KARL M. MANN, *President* — I. H. CASE, *Vice-Pres. and Gen'l Mgr.*

FRED SHEPPERD, *Editor* — K. H. GORHAM, *Advertising Manager*

CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, Western Manager: L. M. ROCHE, Western Representative

SAN FRANCISCO: 1045 Sansome St.—C. H. WOOLLEY, W. V. WOEHLKE.

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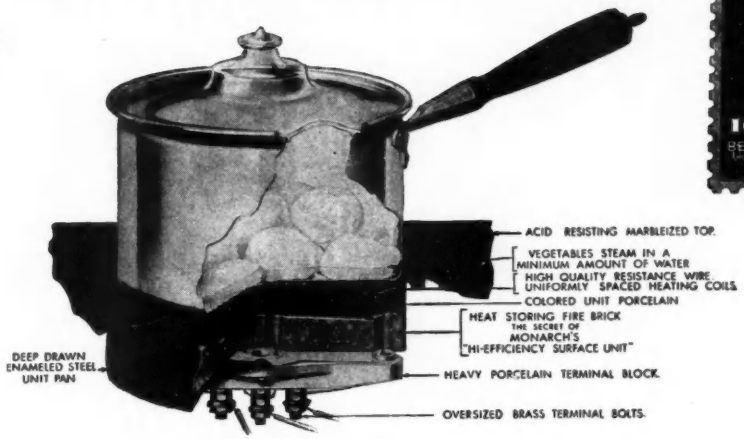
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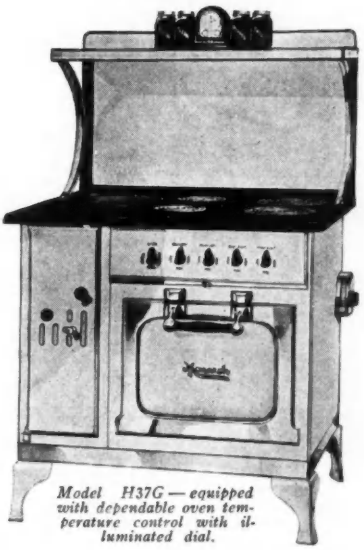

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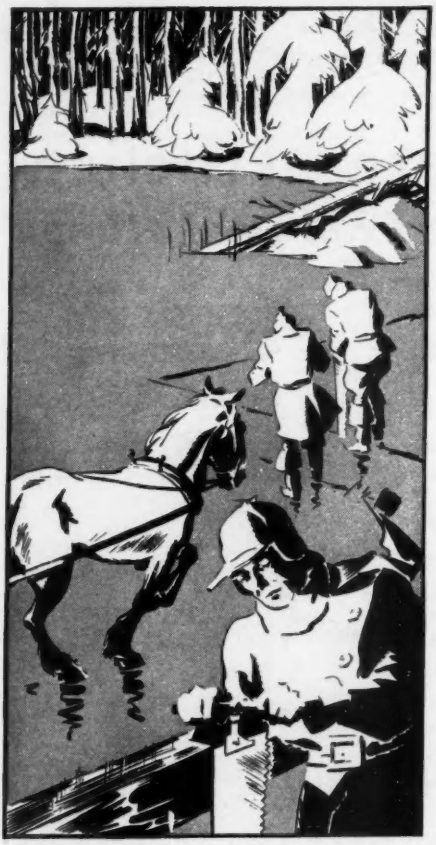

". . . . we found farmers clean in all their work but careless in cooling milk, who suffered many rejections and were often discouraged in producing milk for market."

—Prof. R. M. Washburn,
Director, Dairy Products Institute

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GENERAL ELECTRIC

MILK COOLERS

February, 1933

Electricity on the Farm

Vol. 6. No. 2

It's a far cry from the ancient Egyptian oven type incubator to the present day electrically operated one.

ANCIENT INCUBATION

By HELEN COWAN

AMONG our legacies from ancient times is the incubator. The great electric machines which are the pride of our farms are the direct descendants of the incubators of ancient Egypt and China. Great mystery always enveloped the large brick buildings of Egypt where the secret trade of artificial hatching was plied. And the initiated who carried on the elaborate process zealously guarded the mysteries which had been handed down to them through generations—for the trade was confined to a few families. But from what information has been obtained, we have a fairly clear idea of what the incubator was like and some knowledge of the process.

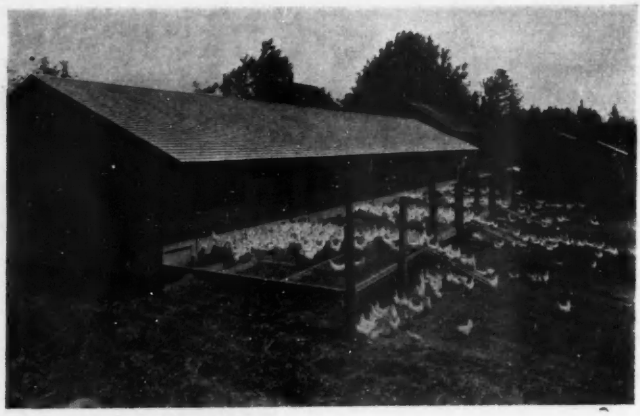
Incubator Construction and Process

The incubator building, made of brick, seems usually to have contained four large ovens, ranged on either side of a central passage. Each of the ovens, which was large enough to contain several men, could be entered by a small circular opening from this central passage. After the eggs had been placed in the middle of the floor of the oven, a fire was lighted in the gutters around the sides. When the right degree of heat was reached, an achievement which was one of the most important and secret parts of the process and seems to have demanded great skill on the part of the operator, the entrance of the oven was plugged with coarse tow. The fires were watched for about ten or twelve days, and then allowed to go out. From 40,000 to 80,000 eggs could be handled at once in such an incubator as this, and so great was the skill of the operators that about two-thirds of the eggs were successfully hatched. Each incubator produced about eight broods during the year.

Primitive Methods Recently Employed

Far more primitive is the method of incubating which has been used in France in recent times. Here turkey hens were trained to become professional "sitters," hatching one brood after another continuously for as long as three to six months.

As long ago as 1824, an incubator has been developed in the United States for use on the farm. This early contrivance consisted of a double-walled metal box with several pipes opening into the wall spaces around the incubator. Steam could be driven into the pipes from a common kitchen boiler. From time to time after this, new appliances were developed, operated by various kinds of heat, until finally the electric incubator was evolved. Changes in the outside atmosphere and variations in temperature occasioned by organic changes in the egg, are both compensated for by automatic adjustment of the electric heat. Provisions for the regulation of the moisture content of the air, for air circulation, and for the mechanical turning of the hatching eggs, are also part of the electric incubator. This intricate machine, with its almost human adaptability to its task, is what electricity and scientific modern farming have made of the incubator of the ancient Egyptians.



Modern brooder houses with screen wire porch that broods chicks with lessened danger of coccidiosis.

Pertinent Points from PRACTICAL POULTRYMEN

By H. P. VICKREY

"LAST year we brooded 2,000 chicks under electric brooders on our farm and they were the best we ever raised," said Grant Sloop, of Boring, Oregon. "At the same time, we brooded a similar batch of chicks under oil brooders, and they did not feather as well, grow so evenly or as sturdy as those under the electrics and they took a great deal more labor and attention. We have studied the elements incident to brooding and are convinced, after last year's work, that electric heat is nearly perfect for the purpose. This season we intend to run all electric brooders and expect to cut down labor so that one man can care for twice as many chicks as under the old methods in our place."

Mr. Sloop and his son, Arthur, have been in the poultry business for the past twenty-eight years and have 3,600 laying hens. The farm consists of 40 acres of land, but they do not attempt to farm it except to raise some kale and green feed. They specialize in poultry and eggs and do not have time for other crops.

White Leghorns of the Hollywood Tancred strain, carefully culled each year, are the foundation stock and the eggs that go to the electric incubators come from their own pens. Four thousand chicks are brooded each season and are divided into two hatches. Eighteen portable colony houses with runs are on the place and the pullets are put into the laying houses from new, clean ground each year.

The laying house is 532 feet long, a new section 190x26 feet having been built last year and added to the older sections, which are 18 feet wide. In the opinion of the owners, the wider house is better in every way. Feed rooms are located at convenient intervals and cello-glass in removable frames is provided along the fronts. Ample yardage is provided for the hens and they are released each day. Some runs are seeded to oats, others planted to kale, which is cut and fed to the birds. Plenty of clean water is supplied by an automatic pumping system, and immersion heaters are used during cold weather to take the chill from the drinking water. These heaters draw 150 watts each and are designed to warm a trough holding five gallons of water. In colder weather, they run continuously and have helped cut down slumps in egg production.

Lights Automatically Controlled

The older units of the poultry house have the feed and water troughs on the outside of the building and so arranged that the birds have access to them through the open fronts. In the new addition, these are placed inside for greater comfort to the flock and their protection from drafts when feeding. Ventilation is provided by flues about 22 inches square that run within 18 inches of the floor. They seem to aid materially in keeping the litter dry. All the laying houses are wired for electricity and lights are turned on by a time switch.

A new brood house 20x74 feet was built last spring in time to receive the first hatch of 2,000 chicks. This building is divided into four brood rooms, sixteen feet square, with a feed room at one end and a four-foot runway along the entire front. This alley permits inspection of each pen within a few minutes without entering the rooms themselves, allows convenient access to any part of the building and is wide enough for a litter carrier to pass through.

Electric brooders of 500-chick size are used and placed above hardware cloth platforms made in sections that are easily handled by the attendant. Counterweights are arranged so each brooder may be lifted clear, the platforms set aside and the entire floor space left clear for cleaning. During

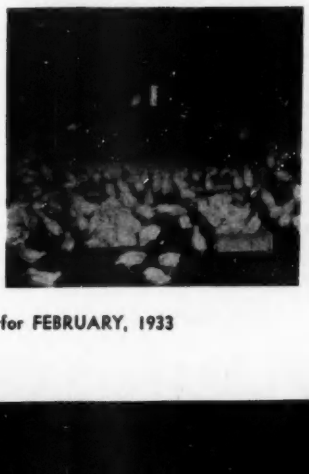
the first week, burlap is placed over the hardware cloth and a week after it is removed, roosts are laid across the screens. These are gradually raised two inches at a time until the birds are taught to roost by the time they are ready for the range houses.

Wire cloth platforms were used under the oil-heated brooders as well and have proved to be of decided advantage. The arrangement speeds up the care of the birds, and Mr. Sloop believes that one man can care for 5,000 chicks in a brooder house, similar to his, if he has electric brooders on wire platforms and has assistance in cleaning the pens.

The new brood house is patterned, with certain changes, after one of the models at the Oregon State College. It has a wire-floored veranda on which the chicks may run on bright days, when a week old. After two weeks they are permitted to run beyond onto the ground and have the use of both the screen porch as well. By this system, the danger of disease is lessened. The screen porch is two feet above the ground and has water connections so placed that fountains may be filled and emptied upon it without danger of slopping moisture into the litter.

During the coming season, the Sloops intend brooding chicks in colony houses under electric brooders as well as in the large brooder house. They have found electricity produces a uniform heat, even heat free from gases incident to other types of brooders. The lower area is warm while the remainder of the room is cool. One of the serious problems of brooding large numbers of chicks has been "piling up" and suffocation of chicks by faulty burners. With the older type of brooders that heated the room, sunlight made warm patches on the floor where the youngsters congregated and later in the evening did not return to the heated area of the hover. This resulted in "piling up" in the corners of the brood room and, unless discovered by the attendant, caused serious losses. With a warm hover and a cold room, the birds soon learned the source of heat, came out to eat and exercise, and darted back to the warmth when chilled and did not crowd into corners of the room. The use of hardware cloth beneath the hovers did away with any tendency toward dampness, often called "sweating."

"Power off" alarms are installed on the Sloop farm to give notice of interruption of service. They have not had any, and they believe they will not cause serious trouble after the chicks are ten days old if there is some insulation on the hover, and the birds stay under the brooder all night long without additional heat. In any event, failure of electric service is no more dangerous than having the fire go out in a coal brooder or clogging of an oil line.

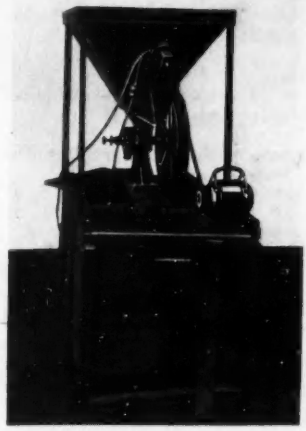


One of the electric brooders on the Sloop farm at Boring, Oregon.

FEED GRINDER for Small Farms

By George W. Kable

AN electric feed grinding outfit costing less than forty dollars complete with motor, is a recent development on the National Rural Electric Project. This grinding unit is intended especially for farms where the feed requirements do not exceed a few hundred pounds per day. It is powered with a one-quarter horsepower motor, and is provided with automatic devices to stop



Small automatic grinder devised on National Rural Electric Project. It includes a 4½ inch burr mill, ¼ H.P. motor, thermal switch and automatic cut-off valve in hopper.

the motor when the hopper is empty or in case the motor is overloaded.

The mill is a 4½ inch burr mill with general purpose burrs which are suitable for medium fine and coarse grinding. It is equipped with a 22 inch pulley to give it the proper speed reduction. The motor has a 3 inch pulley grooved for a one-half inch "V" belt, which is used for driving the mill.

A six ampere overload switch is used for starting the motor and for protecting it against overloads. These small thermal switches are now made by a number of companies.

The device which stops the motor when the grain hopper is empty is a flap valve made of galvanized iron and hinged over the edge of the hopper of the mill. The outer end of this flap valve is heavier than the inner end, which causes it to drop down and snap the switch when the hopper is empty.

This little grinding outfit is not intended to grind a big lot of grain in a hurry. You fill the hopper, start the motor, and adjust the burrs and feed gate, then go on about your work. You may even go to bed with the assurance that the grain placed in the hopper will be ground when you get up in the morning and the motor will stop as soon as its job is done.

Propagating ORNAMENTAL EVERGREENS

By J. C. SCOTT

THE value of electric heat in propagating ornamental evergreen shrubs in winter is being well demonstrated at the J. J. Bonnell Nursery, Renton, Washington, where two propagating beds, each 3 ft. x 44 ft., are electrically heated, by the side of other beds heated by hot water.

"The plants in the electrically heated beds rooted in half the time required where hot water was used for under heat," asserted Mr. Bonnell, "and 95 per cent. of the cuttings rooted in the electric heat, in comparison with 45 per cent. in the water heated beds."

Steadiness of Temperature Important

When asked why there was such a difference in the results of the two methods of heating the propagating beds, Mr. Bonnell answered:

"Steadiness of temperature is the thing which makes the difference. With the electric heat, we keep the temperature of the sand at 76° F., while in the water heated beds, it is impossible to keep anywhere near such an even temperature.

"There may be other reasons for the plants in the electrically heated beds shooting ahead. With the electric heating wires in the sand, there may be enough current in the soil to give the plants some sort of gentle stimulation, which the others do not get. Whether this is true or not remains to be proven by further experimenting. One thing we do know, however—we get results with electricity."

Mr. Bonnell's propagating beds are set up well off the floor of a green house. The green house is not heated unless the temperature drops to 40°F. The bottoms of the beds are of wood, giving ample provision for drainage. Drainage is very important, as the roots of these plants will not develop in water, although they must be watered often.

In the bed is six inches of pure washed sand and no dirt. Four to five inches under the surface of this sand is laid the electric heating wire. The wire is run from one end of the bed to the other, back and forth, in lines six inches apart.

In one bed there is solid ½ inch lead wire with a transformer to step the voltage down to 12 volts. Two hundred fifty feet of this wire is used, and the load is approximately 1 kilowatt. A thermostat is placed in the sand to control the current so the temperature will not vary. The sand must be packed well around the wire to leave no air pockets. The wire burns out easily where there are air pockets. It is not necessary to insulate the wire.

The cost of the electric parts for a bed 3 ft. x 44 ft. is as follows:

250 feet of ½ in. round lead wire (approx. 1000 W. at 12 V.)	$25.00
Thermostat	12.00
Wiring and switch	10.00
Transformer to reduce 110 volts to 12 volts	25.00
Total	$72.00

In another propagating bed 4 ft. x 30 ft., the electric heat wire is asbestos insulated with lead sheath covering. This wire, with an overall outside diameter of ¼ inch, is also laid in the sand.

The price of the electric parts of the lead sheathed heat wire installation for a 4 ft. x 30 ft. propagating bed is as follows:

275 feet of wire, approx. 1000 W., 110 volts	$11.41
Thermostat	12.00
Wiring and switch	10.00
Total	$33.41

Electrically heated propagating bed at the J. J. Bonnell Nursery, Renton, Washington. Soil temperature is kept at 75 degrees Fahrenheit by thermostatic control. Heating wire is in the sand.

A Southern farm home—Norwood Dairy

MODERN METHODS PAY

By C. L. OSTERBERGER

OUT Barrataria Boulevard at Marrero, Louisiana, a mile from the Napoleon Avenue ferry, one's attention is attracted by a large sign on a concrete silo which reads:

> **NORWOOD DAIRY & POULTRY FARM**
> **Phone UP-0774**
> **Grade "A" Raw Milk**

A roadside sign similarly worded invites passers-by to stop and inspect the plant. On entering the grounds, one is instantly impressed with the modern appearance of the entire farm layout.

The owners and operators of this farm are Mr. D. H. Roussel and his son-in-law, Mr. E. J. Folse. The wives of these two men, too, have their part in "carrying-on" the business, for Mrs. Folse runs the office and Mrs. Roussel attends to the home and gives general supervision to the poultry plant.

It is refreshing to visit this place and chat with these people for here's a good example of what team work, coupled with progressiveness and plenty of "hard plugging" will do towards attaining success. Mr. Roussel, the senior partner, is naturally proud of the place; and when complimented, replied, "Well, this represents our life's savings and twenty-five years of hard work. We're gradually making improvements and adding conveniences," he continued. "We just put in an automatic electric water heater for the house."

"How do you like your electric water heater?" I asked.

"Wouldn't be without it," was the prompt reply.

"We're doing everything electrically in the dairy and poultry plant," he continued. "Of course, we have quite a few electric devices in the house and every once in a while, something else is added."

"Do you find electricity profitable in your dairy and poultry business?" I inquired.

"Well, let's just look around and see—let's go over to the poultry houses first. You see, we have yard lights scattered around. That's cheap insurance against robbery and prowlers," he commented as he led the way to the brooder-house which is heated by means of an automatic oil burning outfit. In one end of this building is a 3172 egg capacity incubator of latest design and all-electric. The machine was in operation at the time of this visit and when asked how he liked his incubator, Mr. Roussel remarked, "It works like a clock, never a minute's trouble."

There was also a fifteen-hundred chick capacity all-electric battery brooder in the same room. This brooder is thermostatically operated and is used to carry baby chicks for the first three weeks. The chicks are then transferred to the brooder house where they are kept until three or four months old. The flock on this farm consists of five hundred layers, all of high producing strains of White Leghorns.

Lights Increase Egg Production

All poultry houses are equipped with adequate lights, which not only make the work easier, but, in addition, can be used for increased egg production in the laying houses during the winter months, by lengthening the hen's working day. This adds substantially to the production during that portion of the year when eggs are scarce and consequently high priced.

The dairy is modern in every respect, with ample light and ventilation. The floor is concrete, and steel stanchions are used. One is immediately impressed with the cleanliness of this building.

Shortly, the cows were brought in for milking. A nice looking bunch of grade and registered Guernseys and Jerseys, forty in number, constituted the herd.

"Nice looking cows," one visitor remarked.

"Yes, they're pretty fair—and you know—we've been in business over eight years and have never had a 'tuberculin reactor.' Our production is off some now, but we're getting around one hundred gallons of milk a day," continued Mr. Folse.

Electric Milkers Used

Just then three shiny milking units were brought in and spaced along the stanchions. One man was in attendance and in forty-five minutes the milking job was done. All with the aid of a small electric motor.

"That was an easy job!" one visitor exclaimed.

"That milking machine does the work of six men, gives a much cleaner product and one man handles it," was Mr. Folse's reply.

"Now," he continued, "there's the milk room. We cool electrically, and in this room is the refrigeration outfit and cold storage."

The refrigeration equipment consists of a two-ton ammonia compressor operated by a 5 h.p. motor. A large cold storage room and an ice making tank having a daily capacity of 500 pounds of ice complete the refrigeration unit. An unique feature of this automatic installation is that the pump which handles the cooling water for the refrigeration unit is sufficiently large to keep an elevated tank supplied as well as the concrete watering troughs in the pastures. It was astonishing to learn further that the refrigeration plant, which appeared almost new, had been in constant use for over four years. An inquiry as to whether any trouble had been experienced with this outfit, brought the following reply:

"Our only trouble is to put the switch on."

It was stated that this machine saved the purchase of about five hundred pounds of ice daily and kept the milk down to 36° Fahrenheit. To further insure the high quality of this milk, the big delivery truck is equipped with an insulated box and the refrigerated milk, in bottles, is packed in crushed ice for delivery to the customers.

Thus a very pleasant visit ended and the visitors drove off thoroughly convinced that farming, when conducted as Norwood Dairy does, is profitable, and that today electricity is playing a big part in helping make it so.

COOLING TANKS ON MODERN FARMS

Upper: This cooling cabinet has been set low so as to save lifting the heavy cans of milk, a feature which increases the value of the installation.

Right: Another milk cooling cabinet refrigeration unit. This installation is on the farm of Anna H. Taylor, Williamsburg Road, Richmond, Va.

ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

All packed and ready to go places in its neat leather case.

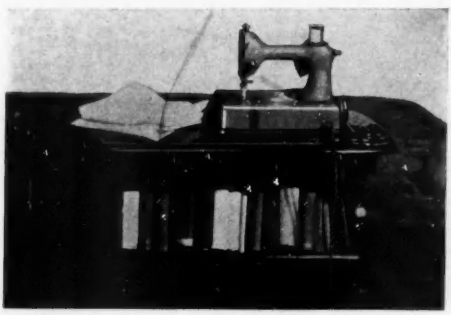
INSTEAD OF FOOTWORK

A MOTOR does all the footwork for electric sewing machines. That is their chief contribution to modern sewing. But though quite the most important, it is by no means the only one. Motor driven sewing machines are electric lighted, too, with a lamp screwed right on the head of the machine so its light falls squarely on the presser foot just where we want it. Both sunny days and dark days are good sewing days with this lamp at hand. No corner is too dark to sew in, either, nor do we have to keep screwing the machine around to get the light just right. The light is there, and it is always right.

Electric sewing machines operate smoothly and quietly. You cannot start one off in the wrong direction to save you; you just thread the needle and press a lever with your knee or your toe, and off it goes at any speed you want. You can press so lightly that the machine moves slow enough for you to count every stitch it sets in the cloth, or you can press down hard and send it whizzing along at a great rate.

Some machines have a flexible presser foot that rides over thick and thin without missing a stitch. Seams or tucks or hems that might make you stop, lift the foot and ease it gently over with your old machine never give these new models pause.

You can run an ordinary sewing machine with a small portable motor. That was fairly common a few years ago, and it was a great saving of backs and legs. But many companies are making electric machines these days with the motor built in, definitely a part of the machine itself. Then because houses are smaller and sewing rooms rare, because we somehow got the idea that a sewing machine did not belong in the dining room, and did not fit into the living room, we began grumbling about its looks.



"Shucks," said the manufacturer, "We can fix that."

And sewing machines masquerade as desks, as hall tables, end tables, or tables where you will. The head folds over in some fashion and the drop leaves turn back making a smooth table top when the machine is not in use. The cabinets are made of fine woods nicely finished so they are a decorative addition to the room.

A New Light-Weight Portable

Then there are portable models to choose if you like them best. For several years we have seen a sewing head with a motor attached built on a sturdy base that housed the rest of the working parts. The cord coils up inside, and when the cover was locked down, you could carry the whole machine by the handle on top. The machines weighed from 26 to 31 or 33 pounds, depending on the model.

But now there is a new portable on the market that weighs but 15 pounds. It is so small that it looks like a little girl's Christmas present at first glance. But it is not a toy. It is a regular machine, ready for any full sized job, fitted with all the usual attachments, and boasting particularly about that flexible presser foot that lets you run from tucking organdy to patching denim if you like.

It does excellent work, silently and easily.

This machine comes in a neat little leather carrying case that looks like a rather square overnight bag. The box of attachments and the little bag that holds the cord and foot control, each fit into their special part of the tray in the top of the box, so when the box is shut up, it, too, is all ready to go anywhere and set up business wherever the cord can reach a convenience outlet.

TAKING THE FIRE TO THE POT

THE thing that makes electric cooking so different from other cooking—one of the things—is its amazing versatility. When you cook with wood, you cook on a stove and that's the end of it. When you cook with oil or gas, it is the same. But when you cook with electricity, you can take the fire to the pot and cook where you like.

Take this matter of small electric cookers. They can be used anywhere the current flows to a convenient outlet, and they will cook a surprisingly wide variety of foods. I like them because they need little watching, because they do not heat up the kitchen in summer, and because of the excellent results I have with them in cooking meats.

I say "them" because I have no less than four cookers myself. The three of them in the picture below are in almost constant use at our house.

The first one I got was the squatty little fellow at the right. It is a two quart dish enamelled in ivory and brown. The cooking well and the cover are made of seamless steel overlaid with seamless enamel. The electric wires that carry the heat are wound in the side walls instead of the bottom so nothing ever burns on the bottom of the cooker and the rich brown juices of the meat are not dried up. Both the sides and bottom are thickly insulated to keep the heat in. That is why the cooking can be done with so little electricity. When I have the unit on High, it uses but 325 watts, and on Low, 100.

I had used it about a year, I should think, when I saw the new model of the same casserole finished in triangular panels of gleaming chromium and trimmed with handles and knob of black bakelite. This casserole has a removable cooking dish; it is jet black with a white lining. This inset is a little easier to wash, and it takes up a little less room on the table than the whole casserole.

The minute I saw it, I knew that cookers are habit forming jugs, and I was an addict. I had to have that new cooker.

Besides I might just as well be making scalloped potatoes in that while the roast is sputtering away in the other. Even a husband can see how it is.

The wattage of this cooker is slightly higher than the other, 425 watts on High, and 130 on Low. The insulation is the same.

Have a Variety of Uses

The third one holds as much as both of these first two put together. It is a four quart cooker, about nine inches high and a foot wide. The outside is Duco and chromium plate, and the inside seamless aluminum. The aluminum cooking dish comes out; it has a handle and a removable partition that makes two pans of it on occasion, so I can cook a vegetable and meat or two vegetables at the same time. This larger cooker has somewhat thicker insulation, and is bulkier and heavier. It is extremely well built. The bail is heavy, firmly bolted to the cooker body and fitted with a wide comfortable handle.

I use these cookers for every casserole dish on our menus. That means both meats and scal-

loped vegetables, of course. I use them for baking potatoes and beans, for making soup and some day, I am going to try them for popping corn. My neighbor on the left makes the breakfast cereal in hers over night; she steamed her Christmas pudding in it and bakes brown bread.

No Special Wiring Required

We both like being able to use these cookers anywhere, as we can, since their wattage is so low they do not require any special wiring. I sometimes want to set one of them outside on the back window ledge to cook cabbage, or cauliflower, or onions. Other times I am glad to be able to plug it into an outlet in a neighbor's kitchen when we gather for a community supper, and I have brought the roast piping hot. If the Middle West would only follow California's example and wire some of their picnic places for electric cooking, I would like to just plug it in after we have been off on an all day picnic and the supper is in the pot. Of course, any of them will keep food hot for a long time after it has been separated from the source of heat. The insulation takes care of that.

And the cooker I do not have interests me as much as the ones I have grown accustomed to.

There are two automatic table cookers that work on the same principle. You plug the cord in, put water in the correct amount for the food you are using in the bottom pan, then you set the cooking pan into it and cover it up. With one cooker that is all there is to it. The heating begins as soon as the water goes in. With the other, you turn on the current with a switch. The food is cooked with steam. It cannot be overcooked or overdone if you follow directions, for as soon as the water is all turned to steam, the current shuts off automatically, that is why measuring the water is quite as important as measuring any ingredient in the recipe when you use these cookers.

Any food that can be boiled, stewed or steamed could be cooked in one of them. Cereals, eggs, soup, even vegetables, fish and desserts can be cooked either partly or wholly on the table under the twitching nostrils of your hungry family and guests, if you like.

The latest cooker to come to my attention is called a potato baker. Perhaps it did start out that way, but it does more than that now. It cooks casserole dishes and bakes biscuits and pies to a tempting crustiness.

Secret of Satisfaction

This baker is not designed for long slow cooking. It has a wattage of 450 watts like the larger cookers, but it has no insulation. It is a metal dish four inches deep, and nine inches wide, set up on legs. An enclosed heating element is fastened on the underside of the dish. All food is put on a wire rack that keeps it off the bottom of the pan, prevents burning and provides for a circulation of the heat.

The secret of satisfaction in using any of these special devices lies in reading the manufacturer's directions and following them to the letter. Both operation and care are exceedingly simple, and happily for us, the right way is the easy way to run them.

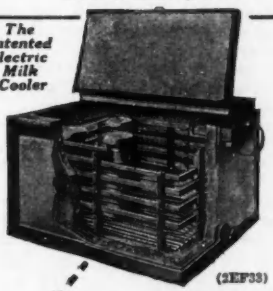
"My ESCO Cools Milk for much less than cost of ice," writes M. F. Moore, Mass. Dairyman

ESCO
Reg. U. S. Pat. Off.

ESCO cools twenty 20-quart cans of milk daily on the Moore Dairy farm, and, as the owner states further, "with practically no attention." Thousands of other ESCO users are having the same experience. They simply put their milk in this equipment and forget it, knowing that the milk will be cooled quickly to below 50° and KEPT COLD UNTIL SHIPPED.

They have no market worries, because quality milk is in constant demand. And, they avoid all the expense and trouble of buying ice or putting it up. A modern ESCO Milk Cooler will do the same for you.

The Patented Electric Milk Cooler



(2EF33)

Patent Pending

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Sterilize Your Utensils Electrically

Bacteria counts go down—and profits go up—when you use an ESCO Electric Dairy Utensil Sterilizer. It's automatic, saves labor, time and money. Eliminates dirt, smoke and fire hazard.

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HEATING WITH A FAN

By PROFESSOR L. J. SMITH

THE electric fan has many possibilities for service. It is not inconceivable that the average electric fan can be used to advantage twice as much as it has been used in the past.. Wherever the fan is, it can be used more to the increased satisfaction of the owner. The following are a few illustrations of some things that can be done with the fan.

We have all experienced the discomfort of being in a cold room in winter months when an unusually cold wind is blowing against that side of the building. If the room is heated by steam or hot water, use the fan to send a strong current of air between the sections of the radiator. This will cause it to throw off more heat. During the December just past, we had some difficulty in heating the offices of the Department of Agricultural Engineering. An electric fan was set up in one of the offices, facing the radiator, and the current turned on. Inside a half hour the temperature rose 10° Fahrenheit. Since then two fans have been running every cold, windy day, and it looks as if they are going to be used more in the winter than in the summer.

To Speed Up Flow of Air

There are times when a fan will help out in homes where a hot-air heating system is used. Heavy winds tend to increase the air pressure and air leakage in the rooms on the windy side of the house, which causes a slower upward movement of air in the hot-air flues on that side. A fan set as close as possible in front of the hot-air register in the baseboard and facing out will materially assist in moving the hot air over toward the colder outer walls.

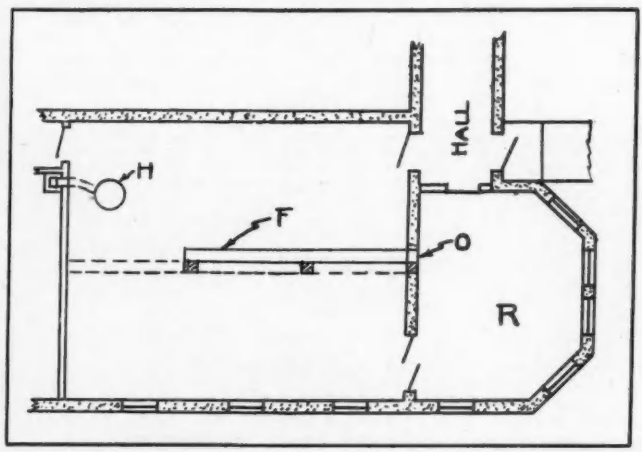
As another illustration, we have all seen shop windows so frosty in the winter that the goods displayed could not be seen from the outside. The useful electric fan can send a blast of warm air against the show window and drive the frost away.

The fan should be used more in the home. Last fall, a member of the writer's household had washed a few garments that she needed in a hurry. The weather was not such that the articles could readily be dried outdoors. "What will I do?" she anxiously exclaimed, when she realized that the clothes would not dry quickly. "I must dry these at once." The writer thought of the lowly electric fan, and got it out, wiped off the dust, and soon had the articles hanging in a warm room with a current of air against them. In a short time they were ready to iron. The fan saved the day in this emergency.

In many parts of the United States and Canada, the laundry clothes are dried in the basement or the attic (often in a rather limited space) during the rainy days or in excessively cold weather. A circulation of air set up by the fan will often speed up the drying process to the advantage of the housewife.

Perhaps the most common argument against the use of the electric range in those farm homes having no modern system of heating is "How will we heat the kitchen?" The heater attachment is designed for this express purpose, but it often proves to be inadequate for the job. The kitchen continues too cool. Again the useful electric fan comes to the rescue. A hole is cut up against the ceiling in the wall between the kitchen and the dining or living room where the big heater is located. The fan is set in this opening facing the kitchen side. With it one can not only raise the temperature of the kitchen to a comfortable degree, but can also keep the dining room from becoming too hot by removing the warm upper layer of air that accumulates at the ceiling.

Cold weather has a material effect on egg production. Hence, the usual higher prices during the cold winter months. Many are talking of putting a little heat into the poultry house during cold spells. Some poultrymen have set up a heater in the feedroom and have put a frame covered with wire netting in place of the con-



How an electric fan was employed to carry warm air through a flue to heat an adjoining room.

necting door in order to let the heat pass into the poultry house proper. An electric fan in an opening in the partition near this door would be of great assistance in moving the heated air into the part of the building housing the hens. If artificial heat can be thus used during "cold snaps," the temperature in the house can be raised 15 or 20 degrees higher than it normally would be, with the result that the hens would be more comfortable and egg production would not drop off as it usually does.

Distributes Warm Air

A final example shows the real service that the fan can render to a community. In a local church the basement has to be stove heated. On account of the chimney, the heater has to remain at "H." The larger room is a bit over 30 ft. long—quite a distance for the heat to travel in order to warm the smaller room "R," especially since the winter winds are from that quarter. A wooden girder supported by two posts supports the floor above the larger room. We built a 12x12-inch flue "F," alongside the girder, using the ceiling and the vertical surface of the girder for two sides, first cutting an opening for the far end of the flue at "O." We set a fan on a bracket at the end of the flue nearest the heater, with the blades inside the flue entrance. In the coldest weather, the janitor turns on the fan as soon as the fire in the heater is going well. The surplus warm air at the ceiling is driven into the smaller room. Thus the temperature of the smaller room is raised, and the excess heat in the area around the heater is removed to the increased comfort of the class nearest the stove. The bottoms of the double swing doors between the two rooms were sawed off about an inch in order to let the air circulate back into the larger room.

There are no doubt many additional ways in which the electric fan can be used to advantage. Would the fan be of any benefit to hens in a poultry house in the middle of a hot summer's day? Would it help keep flies off Bossie while she is being milked? Is there a place for fans in the ventilation of farm buildings? How about the removal of odors and vapors from the kitchen? Think it over. Could the blades be replaced by a small grooved pulley for small power purposes? It may be possible. Without doubt many more uses will be found for this serviceable piece of equipment that was originally designed to cool us off in hot weather.

Questions and Answers

Conducted by
H. J. GALLAGHER

Question: *In a polarized system, is it desirable to break the white or black lead for switching? Is like colored lead connected in the line to the switch?*

In connecting two three-way switches, is the white or black lead kept solid through the first switch?

George W. Morrison
Port Deposit, Maryland

Answer: In 110 volt circuits two different colored wires are used to indicate which is the neutral or ground wire and which is the live wire; the black wire is the live wire and the white wire is the neutral wire. In connecting a switch into the circuit, it should be connected in the black wire; when the switch is open the flow of current past the switch is stopped, the lamp receptacle or appliance controlled by the switch is grounded by the white wire and consequently is dead. Unless the switch is defective, there would be no possibility of getting a shock. If the switch were in the white wire, the lamp receptacle would always be alive and ungrounded which condition might result in annoying or hazardous shocks. In a polarized system always maintain an unbroken white wire.

In connecting three-point switches, only one of the switches is connected directly to the line. It should be connected to the black wire. This leaves the receptacle grounded when the switch is open the same as in the two-point switch.

Like colored lead should always be connected in the line to the switch.

• • •

Question: *When the refrigerator motor is running there is a considerable interference in the radio reception.*

The power company proved I was getting 115 *to* 119 *volts—the refrigerator agents said the power was low.*

The power people say that the brushes on the motor need cleaning. The brushes are emitting

(*Continued on page* 22)

Clip Horses, Cows for More Profit

Clipped horses are cleaned in half the time. They work better, look better, feel better at night. Clipped cows give more milk, clean milk, better milk. Bigger milk checks. One man clips easier, quicker, with

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Clips cows, horses, dogs, mules

It's the world's fastest, finest electric clipper. Great reserve power. Easy grip and perfect balance in any clipping position. Quality throughout. Ball bearing tension keeps plates sharp longer. Plugs in any light socket; or runs from auto battery. 20 feet rubber covered cord. Fully guaranteed by world's largest and oldest established makers of clipping and shearing machines. At any dealer's, or sent direct; $2 with order, balance on arrival. In ordering, describe current available. Other models $11.75 up. Chicago Flexible Shaft Company, 5524 Roosevelt Rd., Chicago.

Satisfaction or Your Money Back

$17 Complete with Universal motor, for 110-120 volt. Special voltage slightly more.

Aluminum Handle model, $18

FREE CATALOG describes world's largest line of power and hand clipping and shearing machines at new low prices.

BATHROOM ACCESSORIES

Many conveniences in the bathroom are made possible by electricity. It provides light, heat and power. And electric appliances require but the minimum of attention.

By KATHERINE GOEPPINGER

IN the bathroom, as elsewhere, it is the finishing touches that so often make the difference between bare necessity and pleasant comfort.

The convenience of a medicine cabinet behind a mirror, placed above the lavatory, is worth its cost. But a bathroom mirror that does not have proper light, by day and by night, is only a source of aggravation.

Brackets at Mirror Ideal

A pair of shaded brackets at the mirror—5½ feet from the floor, slightly above the level of the face—provide ideal lighting in small bathrooms. Inside frosted lamps of 50 watts are sufficient. In large or dark colored bathrooms, a central fixture of enclosing glass may also be required on the ceiling for general lighting. For a mirror so placed that it is impossible to have a light on either side, there is a device which conceals a small lamp behind the mirror. The light from this escapes downward, strikes a white reflecting surface and in turn illuminates the lower part of the face and chin, which is so necessary for comfortable shaving.

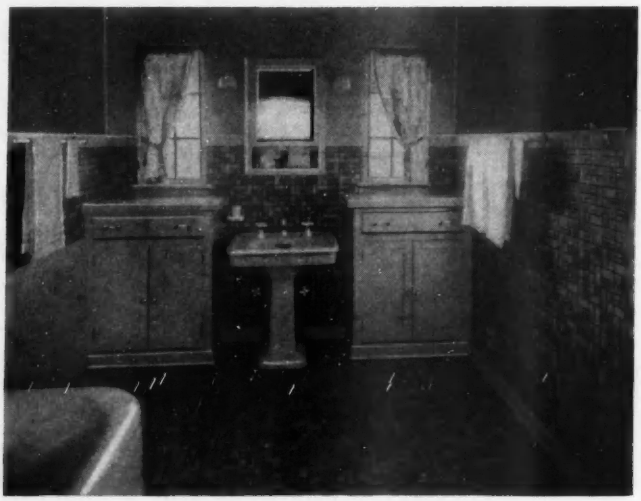
A convenience outlet 48 inches from the floor is desirable for attaching such small appliances as an electric heater, baby bottle warmer, curling iron, water heater or massage vibrator. It must be remembered that any connected electrical appliance should not be touched while one is in the bath or even when the fingers are wet. The body then acts as a conductor and receives a shock. If one is careful, however, an outlet serves a useful purpose. The location of appliances should be such that they cannot be reached from the bathtub.

The Electric Tea Kettle

If you do not have running hot water in your bathroom but have an electric outlet, you can still have the luxury of hot water with one of the new electric tea kettles. They come in two sizes, having a capacity of five pints and five quarts. The smaller size has a 1,000-watt heating unit that brings a quart of water to boiling in six minutes or the kettle full will boil in 13 minutes.

So often during the winter months a good steaming inhalation is effective in treating an oncoming head cold. That problem is settled with an electric inhaler that can be attached in the bathroom and is as simple to use as a cigar lighter.

Some of the new bathroom accessories embody very practical ideas. There are, for example, such things as towel warmers of nickel plated pipe; these are attached to the heating system. The circulating steam or hot water makes them small radiators that take the chill off a room in damp or unseasonable weather. Keeping warm towels waiting for use after the bath is a luxury that costs little. And placed in the kitchen, that is not equipped with a coal range they are valuable for drying dish towels and other small articles.



A well-lighted, convenient, and attractive bathroom.

What's New

Reviewed by T. E. HIENTON

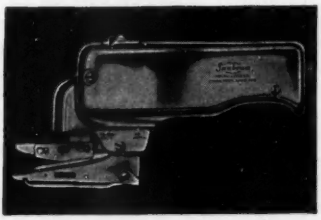
Underneath Belt Motor Drive Bench Lathe

Farm machinery repair work is often completed more rapidly when a lathe is available in the farm workshop by eliminating trips to a machine shop, so equipped. A new compact lathe which seems well adapted for use in the farm implement repair shop was recently announced. This may be secured with or without a bench and is built in 8 inch, 9 inch, and 11 inch swing size.

Operation of the ¼-horsepower motor is controlled by a conveniently located drum-type reversing switch. Mounting of the motor under the bench directly under the headstock of the lathe provides a down-pull drive. The lathe is of the back-geared. screw cutting type and will cut all standard screw threads for bushings, pipe, etc. from 2 to 90 per inch. Other mechanical features include a graduated tailstock spindle, automatic feeds, and precision lead screw.

Electric Scissors

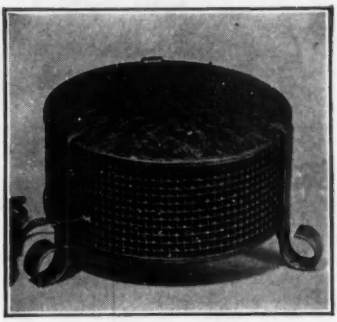
A new appliance for the home, electric scissors, is now available to aid the housewife in her sewing. The handpiece of the new electric scissors is shaped to fit the hand and the blades are so placed that there is no danger of the operator cutting herself.



These scissors are extremely easy to guide and follow the lines of a pattern almost automatically. They are adapted for cutting all kinds of material from the very sheer to heavy woolens and eliminate all danger of fraying or pulling the threads of delicate fabrics.

Portable Electric Heater

Portable electric heaters may be used in numerous ways on the farm to provide heat at critical periods. The seed-corn storage room usually requires heat in the fall to assist in drying out the newly selected seed corn to prevent later damage from freezing. Heaters in individual hog houses may save some young pigs at farrowing time in extremely cold weather. Additional heat in the colony brooder house during occasional cold spells may be of value when chicks are very young. Rooms in the house may require artificial heat during seasons of the year when the furnace or base burner is not in use or extra heat may be needed besides that furnished by the electric system.



A new motor-driven electric air heating unit, rated at 10.25 watts at 115 volts, appears to be well suited to the purposes listed above. This heater is 5¼ inches high, 9 inches in diameter and its approximate shipping weight is 6 pounds. It is manufactured by a well known maker of electrical heating units, is built to fit under any low-built furniture and is finished in bronze.

Dishwasher

A complete dinner service for eight people washed in a single operation is one of the features of the new "Magic Control" dishwasher. The dishes are placed in rubber coated trays in the washer, providing a safe cushion and eliminating the possibility of chipping or breaking. When the trays are filled, the cover is lowered and the only remaining task is the turn of the control switch. The control mechanism is contained in a small sealed box. Crumbs and particles of food are gathered in an easily removed crumb cup. When the dishwasher is closed the top serves as a small kitchen table and additional storage space is provided below the dishwashing compartment.

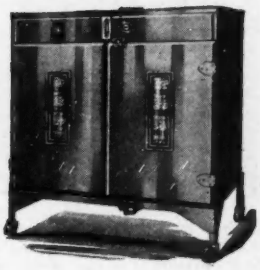
This dishwasher may be had either in the sink or combination sink unit, with or without cabinet and either built to the floor or mounted on legs. The regular models are furnished with a stainless metal top which is rust proof, acid proof, and chip proof though they are also available in a stainless vitreous enamel finish in white or colors.

NEW . . . A 1200 Egg Incubator

The Little Giant

Operates like mammoth machine. Ideal for custom and experimental hatching. All metal, automatic, portable. Operates from light socket. Write today for full information and surprisingly low price.

The Oakes Mfg. Co. Box 328, Tipton, Ind.



This unit makes your old range cook like NEW — and keeps it that way!

CHROMALOX
SUPER SPEED RANGE UNITS

Cook faster and cost less

Here is a chance to save yourself 20% of your cooking time—and cut cooking costs. This highly efficient, fully guaranteed heating unit, which can be installed on any electric range, is now available at reasonable cost. It adds a lot to the joy of cooking electrically. Ask your Power Company for details or write us direct—you can try it FREE on your own range without any obligation. Edwin L. Wiegand Co., 7580 Thomas Blvd., Pittsburgh, Pa. Mfrs. Chromalox Electric Heating Units.

ON THE AIR

Conducted by JEROME J. HENRY

Radio Sidelights

WHISPERING Jack Smith, visiting Singin' Sam's broadcast recently nearly interrupted the program when he forgot himself and broke out laughing at one of Sam's facial expressions.

Freddie Rich and his Dictators were given something to ponder over just before one of their CBS programs. A trombone disappeared from the studio in the 15 minute interval between their rehearsal and the broadcast. The orchestra was forced to go on the air minus the trombone, but still worse, musician Switzenburg has not yet recovered his trombone.

Just to make sure that everything goes well on the American Tobacco Company programs over NBC stations, two announcers are kept on the job.

John Kuhn, the National Farm and Home Hour tuba player calls his fellow musicians, "foreigners." John is a full blooded Sioux Indian.

• • •

Start 1933 Four-H Club Series

THE best music by the world's most famous composers—this is the plan for the 1933 National 4-H club programs broadcast over a coast to coast network on the first Saturday of each month.

For several years, Captain Taylor Branson, conducting the United States Marine Band, has been heard in this favorite feature of 4-H members as well as other listeners. Music Appreciation test periods designed to acquaint listeners with an appreciation and knowledge of the best in music will have for their central theme during 1933, "The World's Great Composers."

Each monthly program over an NBC-WJZ network on the first Saturdays will feature the works of several world famous composers interpreted by the "President's Own" band.

The February hour, on Saturday, Feb. 4, will include works of Handel and Mendelssohn and Chopin. Among the selections chosen for the broadcast are Mendelssohn's "Spring Song," Handel's "Hallelujah Chorus—From the Messiah," and Chopin's "Funeral March."

In each of these programs outstanding 4-H club members from different states will appear before the microphones to tell how club work has furthered their education. The February program will be on the topic "Conducting the 4-H Club Meeting," and will include speakers from Illinois and Tennessee. C. J. Galpin, of the U. S. Bureau of Agricultural Economics, will tell of the "Educational Values That Come to the 4-H Club Member."

• • •

America Hears Programs from 22 Countries

WHERE do all our radio programs come from? What type of material do we hear most frequently? How many letters do the radio artists and stations receive from listeners?

The statisticians at the NBC headquarters prepared some interesting figures on these subjects which were made up into an analysis at the office of M. H. Aylesworth, NBC president.

Literature, lectures, reports of outstanding events, women's and children's programs, novelty broadcasts, physical training and religion occupied one third of the time devoted to NBC programs during 1932. Music occupied two thirds of the time. During a typical month, 24 per cent of the broadcasting was of an educational nature.

Programs from foreign countries carried over NBC networks during 1932 showed a ten per cent increase in numbers as well as a very decided improvement in quality of transmission.

The total of imported programs was 149. Twenty-two countries were represented. Switzerland led the list with 43 broadcasts, due to the large number brought to the United States from Geneva during the Disarmament conference.

Contrary to popular opinion the number of letters received by radio artists and stations during 1932 did not decrease as compared with 1931. About five millions of letters were written in response to the NBC network programs.

• • •

Ordered Sardines and Got a Whale

WHEN Mary Steele, contralto on the Armour program over NBC stations every Friday evening, was studying voice in Paris, she once ordered sardines in a restaurant. "But what I got was a whale on a board," Mary says.

She had used her best French in ordering but it seems the best was none too good.

The check came and she found she had just enough change to pay for the food, but not enough to tip the waitress.

Choicest invectives followed her exit from the restaurant. Of course she had nothing left for carfare, but rummaged through her purse and

It may be a cake or it may be something else that Kate Smith has in mind as she wields the egg beater, but whatever it is she seems to be enjoying the job.

found a lucky piece. Well, she'd have to kiss it goodbye. Entering a palatial hotel she walked over to the clerk and asked, "Would you change some American money for me?"

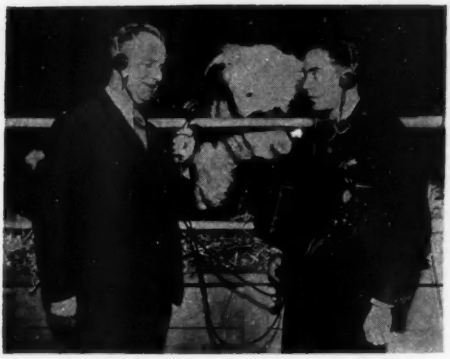
"Oui, madame," came the reply.

The clerk nearly fainted when she tossed a quarter on the desk.

• • •

Jack Benny Is Really a Serious Person

ONE of the funniest individuals on the stage and on the air, Jack Benny is a most serious person in real life. He seems continually steeped in worries. While most radio comedians have but one program each week, Jack has his



Interviewing the grand champion steer at the International Livestock show. Bill Drips, one of the editors of Wallace's Farmer (left) and W. L. States, NBC engineer, with portable short wave transmitter are shown as they walked about describing the sights as they progressed through the exhibition buildings. The champion beef steer, incidentally sold for $1.25, and was the first entry from Texas to be awarded this distinction during the entire history of the show.

Columbia Broadcasting network features on Thursdays and Sundays.

This, he says, would worry anybody; his fellow comedians who poin: toward one microphone appearance every seven days agree with him. Once, when asked why he doesn't crack jokes with his friends, he replied: "I'm too busy thinking them up for my broadcasts."

• • •

Not Interested in Ed Wynn's Horse

ED WYNN may keep right on talking about his horse, but Jens Wies, who operated his broadcasts in the control rooms isn't interested any more.

Time was when Wies followed Wynn's descriptions of horseback riding with rapt attention. Finally, when he could resist no longer, he went out and hired a polo pony for his first horseback ride. Everything went fine for the first 15 minutes. Then the pony stopped, shook himself, and deposited Wies on top of a passing automobile. Now the engineer turns a deaf—and bruised ear—to Wynn, and gets into automobiles of his own volition.

Under The CHESTNUT TREE

Simple Bookkeeping

A colored truck operator was informed that he could not get his money until he had submitted an itemized statement for a certain hauling job. After much meditation he scribbled the following bill:

"3 comes and 3 goes at 4 bits a went—3.00."

Transformation

"Waiter, what is this on the bill?"

"Bungalow fluff, sir, at 40 cents a portion."

"But what is it?"

"Formerly cottage pudding, sir, at 15 cents."

Must Harmonize

"Have you found a coffin yet good enough for your son who died in college?"

"The thing that's worrying me right now is trying to find a sports model."

Appreciation

Card in Florida paper: "Thursday I lost a gold watch I valued very highly. Immediately I inserted an ad in your lost and found column and waited. Yesterday I went home and found the watch in the pocket of another suit. God bless your paper."

"Oh, well," moralized the moralizer, "somewhere behind the clouds the sun is shining."

"Oh, yeah?" demoralized the demoralizer. "There is land under the sea, but that doesn't help a guy who falls overboard."

Silence Not Always Golden

A merchant was persuaded to buy a parrot. It had travelled far and could jabber in several languages. He ordered it to be sent home.

The same day his wife had ordered a chicken for dinner. On leaving the house she said to the cook, "Mary, there's a bird coming for dinner. Have it cooked for Mr. Richards when he gets home."

Unfortunately, the parrot arrived first, and Mary followed instructions. Dinner was served.

"What's this" exclaimed Mr. Richards.

Mary told him.

"But, for goodness' sake, Mary," he said, "this is awful! That bird could speak three languages."

"Then why the dickens didn't he say something?" asked Mary.

Service

A very fussy diner entered a restaurant.

"Now, waiter, I want a nice chop," he said. "I want you to give my compliments to the chef and ask him to pick out one of the best. I want there to be a little fat on one side. I don't want the chop to be underdone, nor do I want it to be burnt. I want it just right, with plenty of gravy. Now, you'll tell your chef exactly what I require, won't you?"

"Certainly, sir," said the waiter, whereupon he shouted down the speaking-tube that connected with the lower regions: "One chop, Joe."

A lady entered and seated herself in a train, containing a solitary salesman.

After a while the traveler said, politely: "Excuse me, miss, but ——"

"If you speak or annoy me, I'll pull the train cord," snapped the girl.

Whenever he attempted to speak the girl threatened to give the alarm.

At last the train slowed up at a station and the traveller rose to his feet.

"I don't care whether you like it or not," he said, "but I want that bag of strawberries you've been sitting on for the last six miles."

Who Makes It?

Here is equipment known to be practical and economical for farm use. The manufacturers listed are leaders in their respective lines and can take best possible care of your needs.

Write to them directly for any information or data you desire.

	Page
Electric Ranges	
Edison G-E Appliance Co.	*Inside Front Cover*
Malleable Iron Range Co.	5
Westinghouse Elec. & Mfg. Co.	—
Refrigerators	
General Electric Co.	6
Westinghouse Elec. & Mfg. Co.	—
Water Systems	
Myers & Bro. Co., F. E.	3
Cullman Wheel Co.	—
Westinghouse Elec. & Mfg. Co.	—
Water Heaters	
Edison G-E Appliance Co.	*Inside Front Cover*
Esco Cabinet Co.	15
Malleable Iron Range Co.	5
Westinghouse Elec. & Mfg. Co.	—
Wiegand Co., Edwin L.	19
Dairy Utensil Sterilizers	
Esco Cabinet Co.	15
Milk Cooling Equipment	
Esco Cabinet Co.	15
General Electric Co.	6
Westinghouse Elec. & Mfg. Co.	—
Farm Motors	
General Electric Co.	6
Westinghouse Elec. & Mfg. Co.	—
Stationary Spray Pumps	
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Electric Poultry Supplies	
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Edison G-E Appliance Co.	*Inside Front Cover*
Malleable Iron Range Co.	5
Westinghouse Elec. & Mfg. Co.	—
Wiegand Co., Edwin L.	19
Churns	
Dazey Churn Mfg. Co.	—

For information about devices not included in the above list—use this handy coupon.

TEAR OFF HERE

Electricity on the Farm, 24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

....

....

My name is.....

Address .....

..... 2-33

Questions and Answers

(*Continued from page* 17)

no spark as I can determine.

However, the interference mitigates against selling electric appliances. It is a question with my neighbors that they either have to give up the radio or the refrigerator. Others say I won't buy a refrigerator because I can get ice delivered, but I cannot buy a substitute for a radio reception.

W. B. Powell
Indian Springs, Georgia

Answer: The condition you describe is the great exception and far from the general rule.

There are hundreds of thousands of homes in the United States where the radio, the electric refrigerator and numerous other electric appliances operate in complete harmony. It so happens that as I write this answer the electric refrigerator, water pump and radio in my home are all in operation, and I cannot detect radio interference.

However, when something goes wrong, it is annoying and in your case may be serious to the extent of establishing local prejudice against electric operation. The first place I would look for trouble would be in the motor of the refrigerator. If the motor is the brush-riding type, I would remove the brushes, clean them and the brush containers, clean the commutator bars with a soft cloth. If the commutator bars are rough, smooth them with fine sandpaper. It may be the brushes are worn and need replacing; faulty brush operation does cause radio interference. Check the tubes of the radio and all wire connections. Old and faulty tubes produce peculiar results at times.

If these home remedies fail, I am confident the services of a competent electrician to check the motor and a radio mechanic to check the radio will produce satisfactory results.

Question: *What keeps electric motors running at the same speed?*

Answer: The speed of an induction motor depends upon the number of poles and the frequency of the alternating current supplied. The standard four-pole 60 cycle motor has a no-load speed of 1800 R. P. M. Poles are always in pairs; as the number of poles increase the speed of the motor decreases. To determine the speed of an induction motor, multiply the frequency by 120 and divide the result by the number of poles.

Mazie: "I hear your boy friend wants to settle down and get a home."

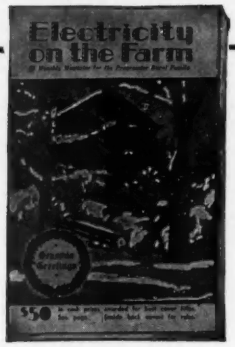
Gertie: "Well, he's got a good start. I gave him the gate last night."

CLASSIFIED ADVERTISING

FREE BULLETIN on Electric Poultry Equipment describing Burglar Alarms, Brooders, Incubators, Heating and Thermostatic Supplies for home made equipment. Have proved they will work in your climate. Write for your copy today. LYON ELECTRIC COMPANY, 2075 Moore St., San Diego, Calif.

The **PARAGON POULTRY TIME SWITCH** is scientifically designed and approved by state universities. It provides automatic control both morning and night and **DIMS THE LIGHT AT NIGHT** to allow the hens to return to roost. Low price and **UNCONDITIONALLY GUARANTEED.** Write for full information today. **PARAGON ELECTRIC COMPANY.** Van Buren and Dearborn Sts., Chicago, Ill.

WINNERS
of December
FRONT COVER TITLE CONTEST



1st Prize-$25.00

"The rigors of snowstorms quickly fade,
With electricity always ready to aid."

MRS. BEECH CHURCH,
R. 3, Box 83, Hanford, Cal.

The following have been awarded $5.00 Cash Prizes:

"Nature's beauty at its height, Could be improved only, by electric light."
MRS. FRED HUMPHRIES,
R. 2, Hudson, Ill.

"If marvels within rival glories without, They will be electric, no doubt."
G. L. TODD,
Cassadaga, N. Y.

"As 'King' winter brings ice and snow without, 'King' electricity brings warmth and light within."
ERNEST E. CORBIN,
Hazardville, Conn.

"Let electricity and Christmas cheer, Make bright a home that once was drear."
BEULAH OWENS,
R. 1, Myrtle Beach, S. Car.

"Winter the magician without, Electricity the magician within."
MRS. THOMAS SEBALD,
R. 2, Middletown, Ohio.

RULES FOR FEBRUARY CONTEST

The whole family can join in these cover title contests.

There will be one first prize of $25.00 and five second prizes of $5.00 each. In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Titles should not be longer than 15 words—the shorter the better—and they need not be rhymes.

Send your title on the coupon below or make out a similar form on a plain sheet of paper or government post card.

Question "A" must be answered correctly.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 No. Michigan Ave., Chicago, Ill., before March 1st.

Winning names and titles will be announced in the April issue.

Follow these simple rules. Your Editor cannot answer letters about the contest.

My title for the February Front Cover picture of ELECTRICITY ON THE FARM is.....

.....

.....

.....

(a) How many electric light bulbs are used

in your house?.....in your barn?.....

in your yard?.....in your poultry house?.....

in other places?.....Total lamps used?.....

My name is ..... R. F. D. .....

Post Office ..... County..... State..... 2-33

The Evening Trail

TRIPS to the ice house, early and late—the better the hay weather, the more ice you lug—until electricity comes your way. Then, for a few dollars a month, electricity keeps things cold. No more ice cutting or sawdust hauling—no more lugging.

The first cost is usually less than that of a good ice house. The running cost is usually less than the cost of ice.

The trail to the ice house disappears along with the path to the pump, and a score of tasks are done for both men and women when electric power comes to the farm.

For further information about any application for electricity not fully described in this magazine get in touch with your Power Company or write ELECTRICITY ON THE FARM, 24 West 40th St., New York, or 6 No. Michigan Avenue, Chicago.

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